Prosopis alba

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Prosopis alba Griseb.

Taxonomy and nomenclature

Family: Fabaceae (Mimosoideae)
Synonyms: none
Subspecies/Varieties: *Prosopis alba* var. *panta* Griseb., *P. alba* var. *alba*, *P. panta* (Griseb.) Hieron.
Vernacular/common names: algarrobo blanco, algarrobo panta, ibope, ibope-para, tacu, thaco (Sp.); white algarrobo (Eng.); algarrobo blanco (trade name).

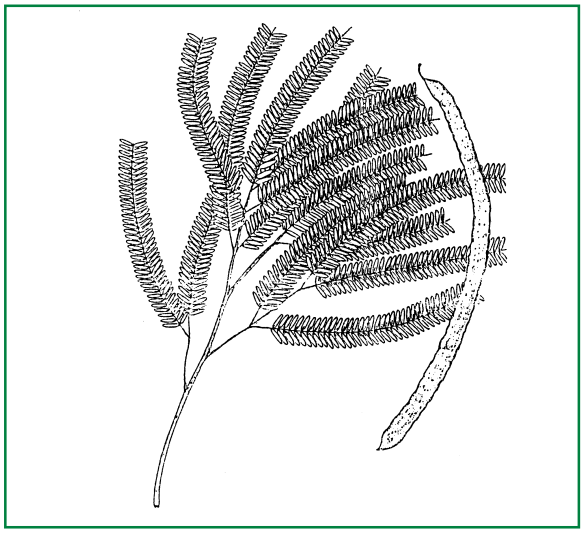
Taxonomic identities of *Prosopis* spp. are still confused, especially is *P. alba* often confused with *P. chilensis* in the literature.

Distribution and habitat

Indigenous to central and western parts of South America where it is distributed in the subtropical zone with annual temperature averaging about 20°C in areas up to 3000 m altitude.

It is found in arid and semi-arid regions with groundwater, such as drainage channels and groundwater sinks. If groundwater is not too deep below the surface, it can grow in areas with less than 250 mm rain/year. Grows well on sandy and to a certain extent saline soils. It is tolerant to temperatures below 0°C and also to high temperature stress (up to 45°C).

Introduced to North America and some Asian countries. In the United States a thornless, cold-hardy cultivar has been patented for use as an ornamental. In some places the species has become a troublesome weed.



Foliage and fruit. (Torrico *et al.*, 1994)

Uses

A multipurpose tree that is valued for its wood, fodder and soil improvement qualities.

The wood has a density of about 0.7-0.8 g/cm^3 and is excellent for both firewood and charcoal. The timber is used for floors and furniture.

The pods are high in sugar content and are readily eaten by livestock or used for human consumption. Under optimal conditions a large tree (40 cm in basal diameter and 7 m in canopy diameter) may produce 40 kg of pods.

The nitrogen fixing properties, rapid growth and deep roots make it suitable for erosion control and soil improvement and it is also planted for windbreaks, shade, ornamental, medicine, gum and apiculture.

Botanical description

Small or medium-sized tree, 5-15 m tall and with a diameter up to 1 m. The bole is short and with many branches; bark grey or brown, furrowed and thin. The branches may be armed with paired thorns but thornless variants are also found. Leaves pinnately compound with 2-3 (sometimes up to 5) pairs of pinnae each with 30-50 pairs of leaflets. Flowers greenish-white to yellow, about 5 mm, many together in 7-11 cm long inflorescences at the leaf bases.

Although closely related, *P. chilensis* is easily distinguished from *P. alba* on the leaves that have fewer leaflets per pinnae (about 10-30) and usually no more than two pair of pinnae per leaf.

Fruit and seed description

Fruit: indehiscent pod, 12-25 cm long, 1-2.5 cm wide, curved, sometimes nearly ring shaped, beige to off-white or yellowish in colour. Inside the pod the seeds are embedded in a pulpy matrix, the mesocarp. There are 12-30 seeds per pod.
Seed: bean-shaped, flattened, each in a 4-angled case. There are 10,000-30,000 seeds per kg.

Flowering and fruiting habit

The species is and self-incompatible and the flowers show an apparent protogyny (female first). In Bolivia, flowering occurs in August-October and fruits are collected in March-April. In Chile, seeds are collected in July. The flowers are pollinated by insects.

Harvest

Seeds are mature when the pods have turned yellowish in colour and are partly dry. The fruits can be collected directly from the tree or from the ground. When collected from the ground, fruit should be gathered at least daily and preferably on tarpaulins to avoid infestation.

Processing and handling

After collection the pods are dried in the sun. The seeds are difficult to extract from the gummy mesocarp. In some places the pods are broken in pieces, each containing one seed and the pod segments are sown. This method saves time but germination is normally lower than when the seeds are extracted.

To extract the seeds the fruits must be properly dry and this can be difficult to obtain at normal air temperatures. If an oven is available, it is recommended to dry the fruits either at 32°C for 18 hours or at 52°C overnight. After drying, the seeds can be extracted by grinding the pods in a mortar or mechanically in a modified cereal huller.

Storage and viability

The seed is orthodox and will retain viability for many years when dried to a moisture content of 10-12% or lower and stored in airtight containers. For long-term storage the seeds should be stored at temperatures of 4°C or below 0°C if possible, but even at room temperature the seeds store well.

Dormancy and pretreatment

The seeds are hardcoated and must be scarified in order to germinate. Burning, nicking and immersion in boiling water are some of the methods that can be used. If the seeds are not extracted from the pods before sowing, they will normally require several minutes of boiling to overcome dormancy.

Sowing and germination

Normally the seeds are sown directly in containers. Germination starts after 2 weeks and continues for up to one month. When the plants are 30-35 cm tall they are ready for planting in the field. Direct seeding is also possible.

In a plantation management system for fuelwood, an initial spacing of 3x3 m is employed. For pod production, spacing of 5x7.5 m is used.

Selected readings

Cruz, N.T., M. Morales and E. Rojas. 2000. *Prosopis alba*. Fichas Tecnicas de Especies Forestales. BASFOR, Bolivia.

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Natural stand of *Prosopis alba*, Cochabamba, Bolivia. Photo: Dorthe Jøker, DFSC.

THIS NOTE WAS PREPARED BY
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